Amendments to and Listing of the Claims:

Please ***cancel claims 1-11 & 23-26*** and ***add new claims 29-41***, all without prejudice, as shown below in the following listing of all claims ever presented. The following listing of claims replaces all prior versions thereof.

1-11. **(Canceled)**

12-22. (Canceled)

23-26. **(Canceled)**

27-28. (Canceled)

29. **(New)** A tantalum film having a single crystal microstructure characterized by an x-ray diffraction peak at $2\theta=55°$ and characteristic (100) spot diffraction pattern and having no grain boundaries.

30. **(New)** The tantalum film according to claim 29, wherein the tantalum is α-tantalum.

31. **(New)** The tantalum film according to claim 29, having a resistance of 15-30 μΩ cm.

32. **(New)** The tantalum film according to claim 29, having a net diffusion distance of less than 10 nm after annealing with copper at a temperature between 650°-750° C for 1 hour.

33. **(New)** The tantalum film according to claim 29, wherein the tantalum is α-tantalum and the film has a resistance of 15-30 μΩ cm and a net diffusion distance of less than 10 nm after annealing with copper at a temperature between 650°-750° C for 1 hour.

34. **(New)** A tantalum film having an amorphous microstructure characterized by a diffuse x-ray diffraction peak at 2θ=30-35° and a diffuse ring in the electron diffraction pattern and having no grain boundaries.

35. **(New)** The tantalum film according to claim 34, having a resistance of 250-275 μΩ cm.

36. **(New)** The tantalum film according to claim 34, having a net diffusion distance of less than 10 nm after annealing with copper at a temperature between 650°-750° C for 1 hour.

37. **(New)** The tantalum film according to claim 34, having a resistance of 250-275 μΩ cm and a net diffusion distance of less than 10 nm after annealing with copper at a temperature between 650°-750° C for 1 hour.

38. **(New)** A microelectronic device having a silicon substrate, a tantalum film deposited on the silicon substrate and a copper layer disposed on the tantalum film, wherein the tantalum film has a single crystal microstructure characterized by an x-ray diffraction peak at 2θ=55° and characteristic (100) spot diffraction pattern and having no grain boundaries.

39. **(New)** A microelectronic device having a silicon substrate, a tantalum film deposited on the silicon substrate and a copper layer disposed on the tantalum film, wherein the tantalum film has a single crystal microstructure characterized by a diffuse x-ray diffraction

peak at 2θ=30-35° and a diffuse ring in the electron diffraction pattern and having no grain boundaries.

40. **(New)** The device of claim 38, wherein the device has a buffer layer of TiN or TaN deposited between the silicon substrate and said tantalum film.

41. **(New)** The device of claim 39, wherein the device has a buffer layer of TiN or TaN deposited between the silicon substrate and said tantalum film.